

In the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

1 1. (Currently Amended) A method of image data processing
2 comprising the steps of:
3 dividing an image into a plurality of two dimensional tiles,
4 each tile composed of a first predetermined number of a plurality
5 of pixels adjacently disposed in each scan line of a second
6 predetermined number of a plurality of adjacent scan lines;
7 storing image data in tiles in a memory having data words of a
8 predetermined data width, each data word including said first
9 predetermined number of a plurality of pixels adjacently disposed
10 in a single scan line, a set of said second predetermined number of
11 consecutive data words corresponding to a two dimensional tile of
12 the image whereby adjacent data words include pixels of adjacent
13 scan lines, and whereby each tile is stored in said second
14 predetermined number of adjacent data words;
15 transferring a tile of image data from the memory to a cache;
16 performing image operations upon said tile of image data
17 transferred to the cache; and
18 transferring said tile of image data from the cache to the
19 memory.

1 2. (Previously Presented) The method of claim 1, wherein:
2 said steps of transferring a tile of image data from the
3 memory into the cache, performing image operations upon said tile
4 of image data transferred to the cache, and transferring said tile
5 of image data from the cache to the memory are repeated for each
6 tile of image data.

1 3. (Previously Presented) The method of claim 1, wherein:

2 said steps of transferring a tile of image data from the
3 memory into the cache, performing image operations upon said tile
4 of image data transferred to the cache, and transferring said tile
5 of image data from the cache to the memory are performed by
6 different data processors for different tiles.

1 4 (Previously Presented) The method of claim 1, wherein:
2 said image operations includes read, modify and write of
3 individual pixels within a data word.

1 5. (Currently Amended) An image data processing system
2 comprising:

3 a memory storing image data in a plurality of two dimensional
4 tiles, each tile composed of a first predetermined number of pixels
5 adjacently disposed in each scan line of a second predetermined
6 number of adjacent scan lines, said memory having data words of a
7 predetermined data width, each data word including a first
8 predetermined number of a plurality of pixels adjacently disposed
9 on a single scan line, a set of a second predetermined number of
10 consecutive data words corresponding to a two dimensional tile of
11 said first predetermined number of pixels and said second
12 predetermined number of scan lines of an image whereby adjacent
13 data words include pixels of adjacent scan lines, and whereby each
14 tile is stored in said second predetermined number of adjacent data
15 words;

16 a tile cache capable of storing a tile of image data from said
17 memory;

18 a data processing apparatus connected to said memory and said
19 tile cache, said data processing apparatus programmed to

20 transfer a tile of image data from said memory into said
21 tile cache,

22 perform an image operation upon said tile of image data
23 transferred to said tile cache, and
24 transfer that tile of image data from said tile cache to
25 said memory.

1 6. (Previously Presented) The image data processing system of
2 claim 5, wherein:
3 said data processing apparatus is further programmed to
4 sequentially operate upon different tiles of image data.

1 7. (Currently Amended) The image data processing system of
2 claim 5, further comprising:
3 a second tile cache capable of storing a tile of image data
4 from said memory;
5 a second data processing apparatus connected to said memory
6 and said second tile cache, said second data processing apparatus
7 programmed to
8 transfer a tile of image data from said memory to said
9 second tile cache,
10 perform an image operation upon said tile of image data
11 transferred to said second tile cache, and
12 transfer that tile of image data from said second tile
13 cache to said memory; and
14 wherein said data processing apparatus and said second data
15 processing apparatus are programmed to operate upon different tiles
16 of image data simultaneously.

1 8. (Currently Amended) The method of claim 1, wherein:
2 said step of storing image data in tiles in a memory stores
3 said second predetermined number of adjacent data words in a single
4 page of a dynamic random access memory (DRAM);

5 said step of transferring a tile of image data from the memory
6 to a cache includes making said second predetermined number of page
7 mode dynamic random access memory (DRAM) accesses; and
8 said step of transferring said tile of image data from the
9 cache to the memory includes making said second predetermined
10 number of page mode DRAM accesses.

1 9. (Currently Amended) The image data processing system of
2 claim 5, wherein:

3 said memory includes a DRAM supporting page mode accesses and
4 said second predetermined number of adjacent data words of each
5 tile are stored in a single page; and

6 said data processing apparatus is further programmed to
7 transfer a tile of image data from said memory into said
8 tile cache via said second predetermined number of page mode
9 dynamic random access memory (DRAM) accesses, and

10 transfer that tile of image data from said tile cache to
11 said memory via said second predetermined number of page mode
12 DRAM accesses.